

because there would have been no motivation to combine the teachings of Noro and Tanaka, for the following reasons.

Noro relates to an impedance compensation circuit in a speaker driving system. The object of Noro is to use the impedance compensation circuit to keep an ideal speaker control state in a negative-impedance driving system, even when the internal impedance of the speaker or the impedance of a connecting cable varies. Col. 2, lines 31-38. As shown in FIG. 1 of Noro, the output from the equivalent impedance means 4 is supplied to a comparison means 5, which compares the output signal from the equivalent impedance means 4 with a voltage detected by the detection element  $Z_s$  and supplies a comparison result to the feedback gain control circuit 6. The feedback gain control circuit 6 controls a feedback gain of the feedback path to the amplifier 11 on the basis of the comparison result to perform positive feedback. Noro neither teaches nor suggests any concern for or detection of vibration of a speaker diaphragm.

Tanaka, on the other hand, relates to a bass reproduction apparatus conducting motional feedback (MFB), including a detector for detecting vibration of a moving system of a speaker unit. The negative feedback circuit of Tanaka feeds back an output signal from the detector to an amplifier.

Since a detector used to output a signal for positive feedback based on a comparison of impedances is not the same as a detector used to output a signal for negative feedback based on detected motional signals, it would not have been obvious to modify the teachings of Noro to use Tanaka's detector.

RESPONSE UNDER 37 C.F.R. § 1.111  
U.S. Application Number 09/732,705

Furthermore, such a combination would change the principle of operation of Noro, which is based on the use of positive feedback of impedance comparison values. If Noro were modified by the teachings of Tanaka, which is based on the use of negative feedback of motional signals, the principle of operation of Noro would necessarily be changed.

The aforementioned important points of distinction between Noro and Tanaka weigh heavily against any motivation or suggestion to combine these references. Therefore, claim 1 is believed to be allowable over the applied prior art for at least these reasons.

**Rejection under 35 U.S.C. § 103(a) over Noro in view of U.S.P. 5,009,280 to Yokoyama**

Claim 1 stands rejected under 35 U.S.C. § 103(a) as being unpatentable over Noro in view of Yokoyama. Applicants submit that there is no motivation or suggestion to combine the teachings of Noro and Yokoyama for the same reasons presented with respect to the Noro/Tanaka combination, as well as for the following reasons.

As noted in an excerpt (col. 15, lines 26-37) cited by the Examiner, Yokoyama discloses a detection unit that detects displacement, velocity, or acceleration corresponding to movement of a diaphragm in a motional feedback system. However, as noted above, Noro relates to an impedance compensation circuit in a speaker driving system, in which a comparison means 5 compares the output signal from an equivalent impedance means 4 with a voltage detected by a detection element  $Z_s$  and supplies a comparison result to a feedback gain control circuit 6 to control the positive feedback based on the impedance comparison.

RESPONSE UNDER 37 C.F.R. § 1.111  
U.S. Application Number 09/732,705

Since Noro's positive feedback is based on performing a comparison of actual and ideal impedances, while Yokoyama's disclosed motional feedback system performs negative feedback based on detected motional signals, it would not have been obvious to combine the teachings of these references. Thus, claim 1 is believed to be allowable over Noro and Yokoyama.

With respect to claims 2 and 4, these claims are allowable, at least because of their dependency from claim 1.

**Claim 3 is rejected under 35 U.S.C. § 103(a) as being unpatentable over Noro in view of Yokoyama and further in view of Klippel (US 5,815,585) and Kim (US 5,666,427)**

Applicants submit that claim 3 is allowable over the applied prior art, because of its dependence from claim 1 and because Klippel and Kim fail to correct the deficiencies of Noro and Yokoyama.

Also, claim 3 is allowable over the combined references for the additional reason that none of the applied references disclose a low pass filter with a cutoff frequency that is lower than the lowest resonance frequency of the speaker. Although Klippel and Kim disclose the use of filters, the references do not teach or suggest the low pass filter claimed by Applicants, i.e., a low pass filter that has a cutoff frequency that is lower than the lowest resonance frequency of the speaker.

RESPONSE UNDER 37 C.F.R. § 1.111  
U.S. Application Number 09/732,705

**Claim 5 is rejected under 35 U.S.C. § 103(a) as being unpatentable over Noro-Yokoyama in view of Klippel and further in view of Kim**

The basis for this rejection is the same as that for claims 1-3. Hence, Applicants submit that claim 5 and its dependent claims 6 and 7 are patentable over the prior art for at least the reasons discussed above in relation to claims 1-3.

**Claims 8-10 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Noro in view of Yokoyama**

The rejection of claim 8 is based on the same combination of references used to reject claims 5 and 6. Since this combination of references is considered to be improper, claim 8 and its dependent claims 9 and 10 are patentable, at least because the applied references have been improperly combined by the Examiner, as noted above.

**Claims 11-17 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Noro in view of Yokoyama**

Claims 11-17 are allowable over the applied prior art, based on the improper combination of Noro and Yokoyama discussed above with respect to claim 1.

In view of the above, reconsideration and allowance of this application are now believed to be in order, and such actions are hereby solicited. If any points remain in issue which the Examiner feels may be best resolved through a personal or telephone interview, the Examiner is kindly requested to contact the undersigned at the telephone number listed below.

RESPONSE UNDER 37 C.F.R. § 1.111  
U.S. Application Number 09/732,705

Applicant hereby petitions for any extension of time which may be required to maintain the pendency of this case, and any required fee, except for the Issue Fee, for such extension is to be charged to Deposit Account No. 19-4880.

Respectfully submitted,



Cameron W. Beddard  
Registration No. 46,545

SUGHRUE MION, PLLC  
2100 Pennsylvania Avenue, N.W.  
Washington, D.C. 20037-3213  
Telephone: (202) 293-7060  
Facsimile: (202) 293-7860

Date: March 25, 2002